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Appraising Executive Compensation ESG-Based Indicators Using Analytical Hierarchical Process and Delphi Techniques

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Abstract: Economic, social and governance (ESG) have become topical subjects amidst the deleterious effects of climate change, inequality and similar pressing challenges facing the people and the planet. The main objective of this study was to rank the importance of both the pillars within the ESG model and the five indicators beneath each pillar for the purposes of executive compensation plans through the Analytical hierarchical process (AHP). It is not known which pillar within the ESG model should be prioritised by companies operating in a developing economy context such as South Africa, and neither is it known which of the available indicators should be prioritised when designing executive compensation plans. AHP and pairwise comparison is employed in prioritising important pillars and indicators. The environmental pillar is identified to be the most important among the three pillars. Indicators that are prioritised mirror both the environmental and socio-economic challenges prevalent in South Africa as an emerging economy. Companies' boards, remuneration committees, investors and policymakers can use the ESG-based indicators that have been prioritised in this study in designing the executive compensation plans. AHP and pairwise comparison are novel approaches used to prioritise the important pillars within the ESG model and the underlying indicators.

Keywords: hierarchical analytical process; pairwise comparison; consistency ratio; ESG; performance measures; non-financial; executive compensation

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1. Introduction

The majority of available frameworks on ESG focussed on self-regulated reporting and voluntary disclosure (He et al. 2022; Kotsantonis and Serafeim 2019). Because of this, companies mostly follow a tick-box, greenwashing, whitewashing and obfuscation which are common tactics in non-financial reporting terrain (Yu et al. 2020). Companies are, therefore, simply bombarding the users of their reports with a lot of information without making any real efforts to tackle the important and pertinent issues of governance, environmental and social good. Hübel and Scholz (2020) supported this when they lamented the fact that ESG is not yet well established and embedded in organisational processes.

ESG and all its pillars are important for South African companies not only because it has become a topical subject globally but because the issues are equally pertinent in South Africa. On the environmental front, South Africa is notorious for its dominant dependency on fossil fuels for energy which has resulted in it being labelled the 14th largest emitter of greenhouse gases globally (Adebayo and Odugbesan 2021). Therefore, holding the companies accountable through incorporating ESG-based indicators in executive compensation plans can assist in making sure that the private sector minimises its carbon footprint. When considering the social pillar, South Africa is among the most unequal societies in the world, with a Gini-coefficient above 0.6 (Rathbone 2022). Habiyaremye (2022) postulated that the level of inequality is partly ascribed to the past injustices of colonialism and apartheid,

where the majority of people, particularly Blacks, were excluded from participating in the mainstream economy. As a result, unemployment, poverty and inequality are the social ills largely seen in the Black majority. The corporate sector still reflects this painful past, with the ownership and management still in the hands of the White minorities (Gyapong and Afrifa 2019; Habiyaremye 2022). In this regard, diversity, inclusivity, equity, and supporting the marginalised and previously disadvantaged people by prioritizing them in procurement and employment are social and governance issues that the corporate sector is expected to contribute to as part of corporate citizenship. Nevertheless, companies seldom incorporate non-financial performance measures in executive compensation plans or when awarding bonuses. Rather, they focus mostly on financial performance measures such as profits, share price and similar metrics (Flammer et al. 2019; Obermann and Velte 2018).

According to Phung et al. (2022), it is not only the non-standardisation of ESG frameworks that is a cause for concern but the fact that there are no incentives for the companies' executives to really endeavour to make a positive impact on society and the environment. Rather, they are currently incentivised to embark on greenwashing and obfuscation of information when it comes to reporting non-financial information (Yu et al. 2020). In addition to this, executive compensation plans are usually designed to incentivise the maximisation of profits (Ahamed 2022). In most cases, maximisation of profits is pursued at all costs, even if it results in environmental degradation, health hazards and other dangers to humanity (Phung et al. 2022; Porcuna Enguix 2021).

In support of the above, Chen et al. (2006) posited that companies used to deem it unnecessary to embark on initiatives that support greening and preserving the environment. Indeed, companies used to view greening initiatives as a burden and hindrance to overall innovative capabilities (Chen et al. 2006). On the contrary, green products and processes give a company an impetus to surpass its competitors. Such a competitive advantage came about partly due to society being conscious of the climate change risk emanating from pollution and greenhouse gas emissions (Nanath and Pillai 2017; Skordoulis et al. 2022).

Skordoulis et al. (2022) contend that society tends to have a positive perception of companies that act responsibly on environmental issues. Because they make public disclosure on how their activities, processes and products affect the environment, larger companies are more likely to be under pressure to be more innovative in finding ways of reducing the negative environmental impact of their activities (Chithambo et al. 2022). Arguably, this is the reason that studies found that green innovation is more pronounced in larger size companies than the small and medium ones and that the need for companies to be greener will intensify in the foreseeable future (Chen 2008).

Maas (2018) contend that the catastrophic climate change risk and ubiquitous inequality all over the world are some of the challenges facing humanity because of the obsession with profits at all costs. Profit maximisation ought not to be a zero-sum endeavour. It can co-exist with the bigger purpose, including the upliftment of lives and livelihoods of the society and ensuring that companies' activities result in lesser or no negative impact on the environment (Flammer et al. 2019). All the stakeholders and those who are interested in companies' affairs, including shareholders, have recently sought to nudge the companies' executives to deliver on the ESG performance (Krueger et al. 2020). Pertinent ESG issues that the stakeholders have been advocating for in the recent past include pay parity ratios or differential between the executives and average workers, decarbonisation, diversity, inclusivity and equity. Shareholders, in particular, have demanded that the executives should have targets on these issues and be held accountable through executive compensation designs.

The aforesaid ESG issues that the stakeholders demand the executives to be held accountable for have not been investigated and prioritised in the executive compensation literature. Instead, the literature has mainly sought to investigate the relationship between executive compensation and a company's financial performance. Such investigations have inconclusive and mixed results (Bussin 2015). Some studies found a positive relationship (Alves et al. 2016; Gao and Li 2015), some found a negative relationship (Khan and Vieito

2013; Olaniyi et al. 2017), while some found no relationship at all (Al-Najjar 2017; Cooper et al. 2016). Few studies that attempted to incorporate ESG factors in executive compensation, such as Rath et al. (2020) have merely extended on pay-performance relationship by attempting to establish the moderating effect of ESG disclosure.

This, therefore, means it is not known what the most important pillars within the ESG model are and what the key performance indicators should be within the different pillars of the ESG model that can be used in designing executive compensation plans. Using the analytical hierarchical process (AHP), this study aims to determine which of the pillars within the ESG model are significant and which of the indicators recommended by the panel of experts should be prioritised when designing executive compensation plans. The rest of the paper covers a literature review, methodology, results and conclusion.

2. Literature Review

2.1. Theoretical Underpinning of the Study

In light of the complex nature of the subject, namely, determining the most significant pillars within the ESG model and establishing which of the indicators within each pillar are significant in designing the executive compensation plans; this study adopts a multifaceted theoretical lens. To this end, agency, stakeholder, legitimacy and signalling theory explain the significance of incorporating ESG data in decision-making (Alsayegh et al. 2020). Agency theory postulates that there must be goal congruency between the management and the shareholders (Jensen and Meckling 1976). Executive compensation plans should be designed in a manner that incentivises the management to deliver value to the shareholders. According to Gray et al. (1995), the stakeholder theory is not at odds with agency theory, rather, it is complementary to it. Companies', through their executives should therefore be accountable, not only to the shareholders but also to all the legal or natural persons, individually or collectively, who are interested in the activities underpinning their value creation (Freeman 2010).

Legitimacy theory suggests that the companies, in their quest to obtain the social licence, endeavour to legitimise their operations through reporting and disclosure of ESG data to the interested stakeholders (Samkin and Deegan 2012). On the other hand, signalling theory postulates that companies disclose ESG information in order to signal their performance on non-financial metrics (Alsayegh et al. 2020; Lee et al. 2022).

2.2. ESG as a Mechanism to Deliver on Sustainable Development Goals

According to Naomi and Akbar (2021), improving companies' ESG performance can assist a country in delivering on its commitment to sustainable development goals (SDGs). South Africa is among the Paris Agreement signatories and therefore subscribes to the SDGs (Roberts 2016). Prioritising the ESG indicators that should be incorporated in executive compensation plans should therefore cause the JSE-listed companies to improve ESG performance, thereby contributing to the achievement of SDGs. This would in turn, provide a potent incentive to the executives to focus not only on short-term profits and share price increases but also on how their companies' activities impact the environment and society.

In the South African context, no poverty (SDG 1), gender equality (SDG 5), clean water and sanitation (SDG 6), reduced inequalities (SDG 10), and climate action (SDG 13) are more relevant. This is because South Africa is among the most unequal societies in the world, while it is also plagued by higher unemployment and poverty (Altman 2022; Kollamparambil 2020; Tshishonga 2019). Incorporating ESG factors in executive compensation plans would therefore help South Africa positively contributing to the SDGs.

2.3. Importance of ESG in Decision Making

Park and Jang (2021) contend that investors take companies' posture on ESG performance very seriously when making resource allocation and investment decisions. This is, therefore, the reason why ESG performance has a direct relationship with companies' cost

of capital. Companies with a better ESG performance would find it easier to raise capital than those with poor ESG performance (In et al. 2019; Nazir et al. 2022; Nekhili et al. 2021).

Nekhili et al. (2021) argue that the lower cost of capital resulting from better ESG performance also means there is a value maximisation that flows to the shareholders. Consistent with the stakeholder theory advocated for in this study, it is not only the shareholders who need a better ESG performance, but all the other stakeholders, such as lenders, customers, employees and society in general, benefits from it. In fact, lenders have also begun to demand better ESG performance from companies. They do this, for example, by demanding that the companies' projects that they finance do not result in greenhouse gas (GHG) emissions, that the projects are greener or that there are no human rights violations (Henisz and McGlinch 2019; Houston and Shan 2022).

2.4. Prioritisation of ESG-Based Performance Indicators

According to Serafeim (2020), there is no standard composite mix of indicators that can be used in executive compensation design, despite the importance of ESG performance. This is supported by Cavaco et al. (2020), who lamented the dearth of literature on ESG-based indicators in executive compensation. Ranking and prioritising the myriad ESG-based indicators that are available from different frameworks and organisations would therefore assist companies in focusing on those that matter in a developing economy setting such as South Africa. The lack of such a composite mix of ESG-based indicators stems from the proliferation of organisations that attempted to encourage companies to deliver on corporate social responsibility and non-financial performance (Christensen et al. 2022; Lashitew 2021; Widyawati 2021).

This study used the indicators from such organisations, including, the World Bank WDI, Yale University Environmental Performance Index, WHO Global Health Observatory Indicator, ILO Decent Work Indicators, UNSDSN indicators, The 10th Principle Against Corruption, Women's World Banking Gender Performance indicators, Behind the Brands Score indicators, UNCTAD proposed core SDGs reporting, AAAQ Framework, UN Globa Compact Oxfam Poverty Footprint, Access to Medicine Index, The Women's Empowerment Principles: Reporting on Progress, Aquastat, Business Call to Action, Quick guide to the Aichi Biodiversity Targets, CDP-Disclosure Insight Action (2017 climate change, forests and water), IUCN Red List, Kepler/Cheveux Inequality Footprint, CEO Water Mandate's Corporate Water Disclosure Guidelines, Tourism Council Criteria and Suggested Performance Indicators for Hotels and Tour Operators and Development of Guidance on Extended Producer Responsibility. The indicators were then exposed to an international panel of experts through a Delphi inquiry strategy.

Exposing these indicators to a panel of international experts supports Christensen et al. (2022) who contended that there should be a common understanding of what represents a good ESG performance. Such a common understanding can be achieved when there are specific metrics that should be used in evaluating performance (Christensen et al. 2022). The youthful population, the majority of which are unemployed, coupled with poverty, and inequality, are factors that are peculiar to South Africa (Altman 2022; Kollamparambil 2020). Such factors together with the demographic profile of the directors and the senior management of listed companies which is made up of mostly white males because of the apartheid legacy, buttress the need for the prioritisation and ranking of the ESG performance indicators (Mans-Kemp et al. 2022; Viviers and Mans-Kemp 2019).

3. Methodology

3.1. Delphi Inquiry Strategy

A Delphi inquiry strategy was employed in order to subject the indicators identified from the literature to the international panel of experts in the broader field of corporate governance. The panel of experts were unanimous in consensus with regard to the 15 indicators, 5 under each ESG pillar. Using 5 indicators is consistent with the approach followed in the literature by the authors such as Schuster et al. (2020) and Sobota et al.

(2017). These authors used a panel of experts to pick 5 indicators in the medical field, a field dominated by the use of Delphi inquiry strategy for determining transition procedures and for emergency care, respectively.

Table 1 summarises the socio-demographic profile of the panel that was invited initially to participate in the study. The majority are based in South Africa (83%), and a significant number possess master's and/or PhD studies (35%). These experts are mostly in academia and serve as members of the boards. A combination of purposive, convenience and snowballing sampling was used to select the panel of experts. First, the literature was used to identify the experts in academia. Second, companies' annual reports were used to identify those that are companies' executives or board members. Lastly, the acquaintances from authors' relationships and social capital were also used. These specifically include former colleagues and classmates in accounting, finance, auditing, law, and those that occupy similar roles in NGOs, labour unions and institutional investors and are deemed experts in corporate governance and executive compensation roles.

Table 1. Socio-demographic information of the participants.

	Characteristics	Frequency	Percentage
Country	SA	94	83.2
	UK	14	12.4
	US	1	0.9
	Others	2	3.5
	Total	**113**	**100**
Qualification	PhD	25	22.1
	Masters, CA(SA)	17	15
	Masters, CPA	1	0.9
	Masters	36	31.9
	CA(SA)	14	12.4
	CFA	7	6.2
	Honours	7	6.2
	Degree	6	5.3
	Total	**113**	**100**
Field	Academic	47	41.6
	Executive/Board member	34	30.1
	Audit firm	15	13.3
	Institutional investors	10	8.8
	Others (NGOs, labour unions and shareholder activists)	7	6.2
	Total	113	100

Source: Matemane (2022).

The ranking of the ESG pillars, as well as the indicators beneath them, is done with a view to assisting in prioritizing the indicators for executive compensation plans in the South African corporate sector. Therefore, while the participants identified in the knowledge resource nomination worksheet (KRNW) might not reflect a global representativity, being domiciled in South Africa (83% of the participants) means they understand the contextual setting and the ESG issues peculiar to South Africa. Furthermore, 17% of the participants are from other jurisdictions outside South Africa, and, therefore, are still able to bring an international view to the fore. Of the participants, 95% possessed a postgraduate qualification, 22% of which possessed PhDs. This is a reflection that the study focuses on the subject matter experts. In terms of the field, the participants are well spread across the broad spectrum, ranging from academia to NGOs which also helps in terms of the diversity of views and representativity of interested parties in executive compensation subject. Most academics are well-versed in the theoretical underpinnings of the subject and can therefore provide a different perspective on how the indicators should be ranked (Fauzi et al. 2019). In addition to theory, most of these academics also sit on boards and consult on a similar

subject, which further adds a practical dimension to their views on the subject (Chen et al. 2019).

On the other hand, the executives and the board members involved in this study are in the coal front of executive compensation plans and the key performance indicators underpinning such plans. They are, therefore, in a position to provide a view of their lived experiences and how truly the suggested ESG-based indicators can best be prioritized when designing executive compensation plans. The participants who are in the audit fraternity provide a different perspective also, especially because executive compensation and associated items such as share options are usually significant line items in the financial statements and would form part of the auditable items when considering materiality (Zolotoy et al. 2021). Institutional investors also represent a significant stakeholder in providing a view on how the ESG-based indicators can be ranked and prioritised. Their sentiments are crucial in the current era of shareholders' say on pay and shareholders' activism on the subject (Lozano-Reina and Sánchez-Marín 2020). Finally, labour unions and those in similar NGOs are also critical stakeholders, especially in the South African context where it is not mandatory for the board to have labour representation or co-determination, which is the case in Germany (McIntyre-Mills 2022).

Before any communication was initiated in terms of the surveys, ethical clearance was sought and obtained from the College of Business and Economics' Ethics Committee in the Department of Accountancy at the University of Johannesburg. In order to obtain consent to participate in the study, an email invitation was then sent out to the panel of experts identified in the knowledge resource nomination sheet (KRNW) based on their profiles. At the same time, a pilot study survey was then sent out to a separate group of experts predominantly in academia (16 in total, 15 from academia and 1 from practice) to provide feedback on the time it takes to complete the first questionnaire, the clarity and the understandability of the instructions and the questions. This group was also requested to provide any other input that they deemed fit to improve the quality of the research instrument. Feedback from the pilot study was obtained within a week, and it was used to improve the research instrument for the first round of surveys. Qualtrics, an online survey software, was used to distribute the questionnaires for both the pilot part of the study as well as the main study consisting of four rounds.

Collectively, all the surveys, first to the fourth, were sent out and responses were received over a period of four months, from May 2021 until September 2021. This was a reiterative process in which the experts in the first round were given a list of indicators obtained from the literature and then asked to decide whether each indicator should be accepted, amended or declined for use in executive compensation plans under each pillar of the ESG model; if they opted to amend or decline the indicator, there were then required to suggest an alternative indicator. Figure 1 below provides a summary of how the research instrument in the first survey captured and sought to achieve.

In the first round, 53 responses were obtained and the indicators that were accepted by more than 50% of the participants and for which participants stated that they were very confident about their choices were carried over to the 2nd round of the study. "Reduction in total kilometers driven with internal combustion engine (ICE) vehicles and initiatives in place to encourage the use of electric vehicles (EV)." and "Mentoring programmes in place by the executives and implementation of the same" were further recommended by the panel of experts in the first round under environmental and governance pillar respectively. These were added to 10 and 21 indicators that were first introduced from the literature in the aforesaid respective pillars. On the other hand, no additional indicator was recommended under the social pillar. As a result, 11, 21 and 33 indicators in environmental, social and governance pillars, respectively, were carried over into the 2nd round of the study. Figure 2 below provides a snapshot of the survey distributed to the panel of experts in the second round.

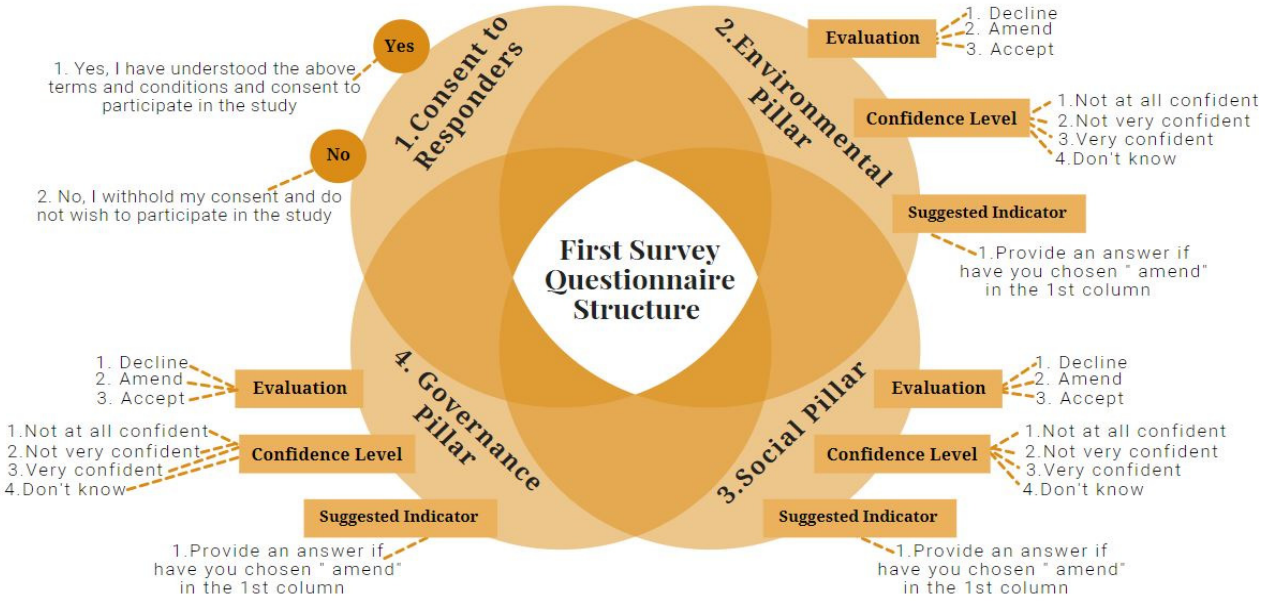

Figure 1. The research instrument used in the first survey. **Source:** Matemane (2022).

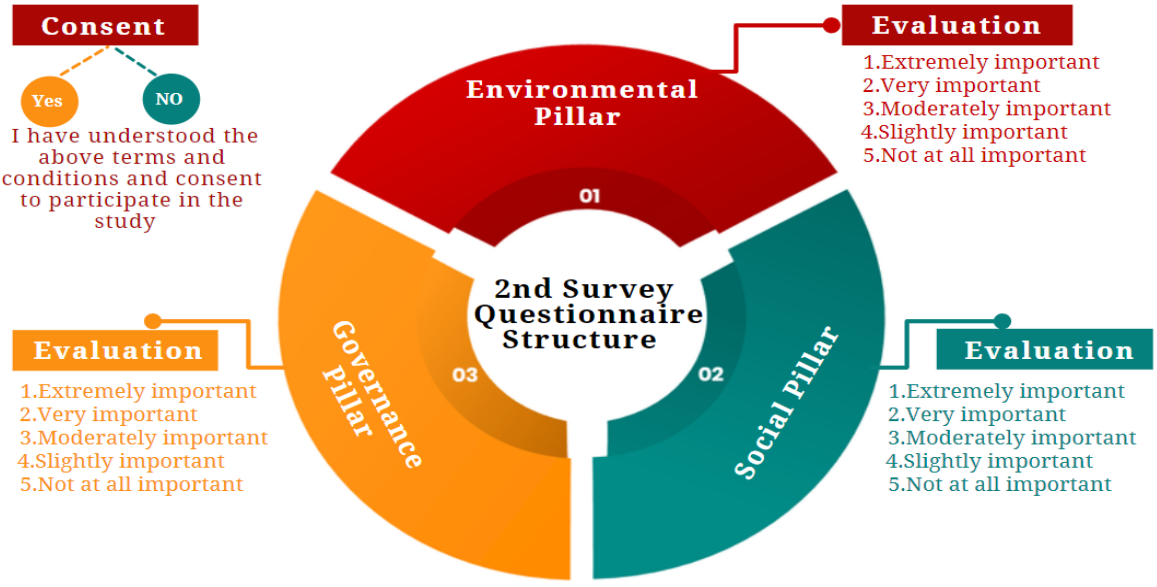

Figure 2. The research instrument used in the 2nd survey. **Source:** Matemane (2022).

As depicted in Figure 2, the experts were required to evaluate the indicators in terms of how important they think those indicators are on a five-point Likert scale ranging from not at all important to extremely important. Forty-three responses were obtained in this round. If less than 50% of the experts did not deem an indicator to be important in the 2nd round, such an indicator was eliminated and not carried over to the 3rd round. Consequently, "Reduction in total kilometers driven with internal combustion engine (ICE) vehicles and initiatives in place to encourage the use of electric vehicles (EV's)" and "Percentage of employees belonging to collective bargaining councils (trade unions)" in environmental and governance pillars were eliminated, respectively, in the 2nd round, since only 45.5% and 34.9% of the participants respectively deemed these indicators as important overall. Therefore only, 10, 21 and 32 indicators in environmental, social and governance pillars respectively were carried over to the third round of survey. Figure 3 below provides a summary of the how the research instrument was structured in the 3rd round.

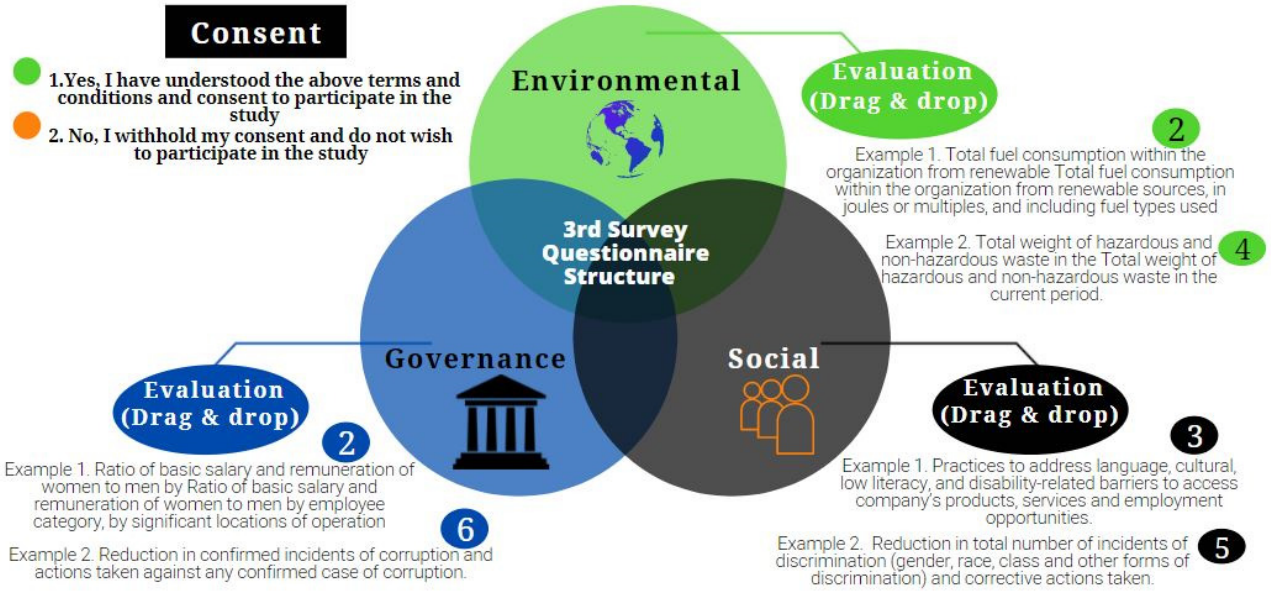

Figure 3. The research instrument used in the 3rd survey. **Source:** Matemane (2022).

In the 3rd round, the panel of experts were simply requested to drag and drop the indicators thereby indicating which one should come first in each ESG pillar. This was an important step before conducting the pairwise comparison of the indicators and the pillars, which is necessary for the hierarchical analytical process. In total, 42 responses were received in the 3rd round and the top five indicators were highlighted from this process. Based on the top five indicators highlighted from the 3rd round, the panel of experts were then requested to conduct a pairwise comparison first for the pillars themselves and then for the indicators beneath each pillar. Figure 4 depicts the summary of the survey distributed to the panel in the 4th round.

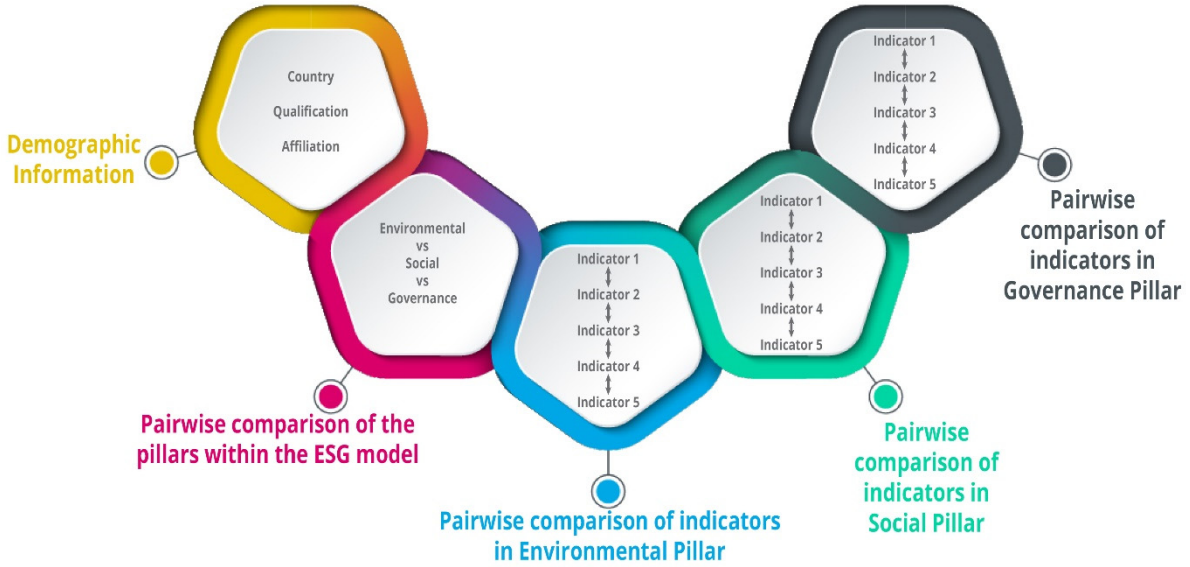

Figure 4. The research instrument used in the 4th survey. **Source:** Matemane (2022).

Overall, 31 responses were obtained in the fourth round. This means overall, 53,43, 42 and 31 experts participated in the first, second, third round and fourth rounds, respectively. The sample size, in all rounds, therefore, comfortably exceeded the range of 7 to 15 experts as recommended by Sourani and Sohail (2015). The fourth round was a necessary step before the analytical hierarchical process, which is discussed below.

3.2. Analytical Hierarchical Process

Analytical hierarchical process (AHP), the methodological approach followed in this study, was then used in order to rank and thus prioritise both the pillars within the ESG model and the 5 indicators under each pillar as picked by the international panel of experts in the 3rd round of Delphi process. AHP is not only a logical step to follow after the Delphi inquiry, but also compatible to it (Shapiro and Koissi 2017). AHP is a multi-criteria decision-making approach employed in solving complex and intricate problems (Alosta et al. 2021; Tuljak-Suban and Bajec 2020). AHP is a systematic approach to thinking by examining parts of the whole system and their linkages. It was developed as a tool for integrating expert judgements. The advantages of the AHP process include the fact that it clearly and concisely communicates the problem, considers different points of view, encourages explicit statements of preference or importance and increases the likelihood of finding an optimal solution. The AHP process structures the problem into a hierarchy and prioritises elements based on judgements (pairwise comparison). The following constitute the chronological order of activities that were carried out as part of the AHP analysis for this study:

- Pairwise comparison of the pillars in the ESG model;
- Pairwise comparison of the indicators within each pillar of the ESG model;
- Estimation of the weights for the pillars and the indicators in point number 1 and point number 2 above, respectively;
- Computation of consistency ratio, which formed part of validity and reliability assessment.

Steps 1 and 2 were carried out by the experts in this study as part of the 4th round. In making the pairwise comparison, the panel of experts rated the indicators relative to each other in Likert-type response format from extremely less important to extremely more important with some variations in between in accordance with the scale suggested for the pairwise comparison (Saaty 1980). More specifically, the following scales were used:

The responses from the panel of experts, as recorded in Qualtrics (a software used to create and distribute surveys), were then exported to excel and later into SPSS in order to carry out the AHP. The scale values used firstly had to be recoded to obtain the inverse scores applicable in the input matrices needed for analysing the data through the AHP method. Table 2 illustrates how the above scales were recoded for AHP purposes.

Table 2. Interpretation of Likert scales used in pairwise comparison.

Likert Scale Rating	Meaning
1	Extremely less important
3	Very strongly less important
5	Strongly less important
7	Moderately less important
9	Equally important
11	Moderately more important
13	Strongly more important
15	Very strongly more important
17	Extremely more important
2, 4, 6, 8, 10, 12, 14 and 16	Midway between two close scales

Source: Matemane (2022).

Once the recoding was done, the first step in the AHP process was the construction of the pairwise comparison matrices for the pillars and indicators, respectively. Afterwards, the sum of each column was determined. Each number in the matrix was subsequently divided by the appropriate column total to obtain a normalised matrix. Afterwards, the

average cross of each row was calculated. The resultant value of each row provides the relative weights or priorities and is the approximate eigenvector.

3.3. Validity and Reliability

In order to validate the results of the AHP, the consistency ratio (CR) is calculated using the formula, CR = CI/RI in which the consistency index (CI) is, in turn, measured through the following formula:

$$CI = (\lambda_{max} - n)/n - 1 \quad (1)$$

where:

λ_{max} = maximum eigenvalue of the matrix
n = number of pillars in the ESG model/number of indicators in the ESG pillars.

The value of RI is related to the dimension of the matrix and was extracted from Table 3. It should be noted that a consistency ratio lower or equal to t 0.10 verifies that the results of the comparison are consistent across all participants (Alonso and Lamata 2006; Golden and Wang 1990; Saaty 1980).

Table 3. Recorded scales for AHP.

Qualtrics questionnaire code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Recoded values	0.111	0.125	0.143	0.167	0.2	0.25	0.333	0.5	1	2	3	4	5	6	7	8	9

Source: Matemane (2022).

4. Results

As discussed above, the panel of experts unanimously reached a consensus on 5 indicators under each ESG pillar during the 3rd round of the Delphi process. Figure 5 presents these indicators, which in turn were prioritised in the AHP.

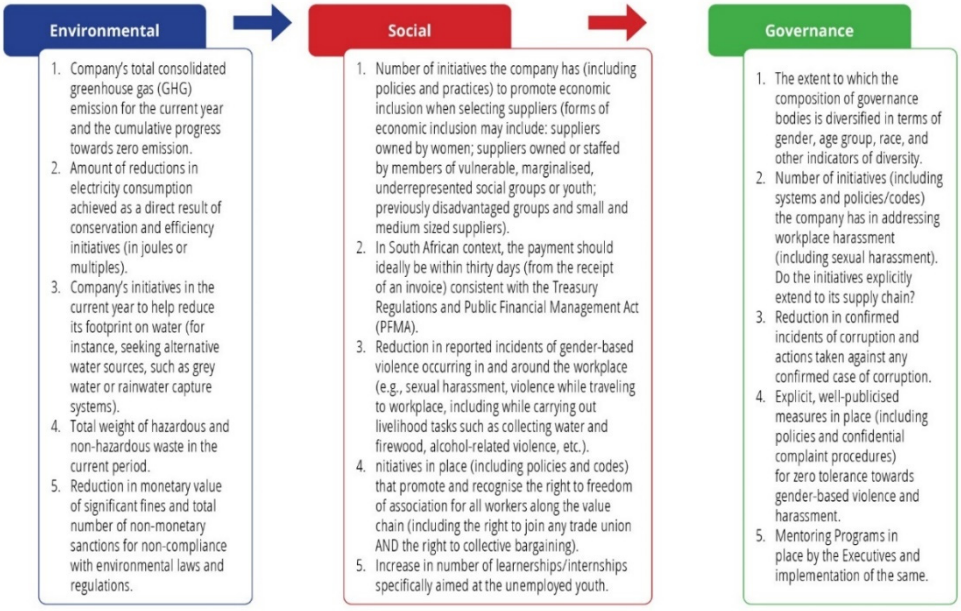

Figure 5. Non-financial performance metric for determining executive compensation. **Source:** Matemane (2022).

According to Altuzarra et al. (2007), priorities or the ranking of each individual element should first be calculated, after which the group priorities must be obtained either through arithmetic mean or geometric mean. Although both arithmetic means and geometric means have been computed in this study, the geometric mean is used for interpretation purposes

because it is superior to the arithmetic mean (Krejčí and Stoklasa 2018). The weights, in terms of the geometric mean and arithmetic mean of the pillars within the ESG model (and that of the indicators within each pillar of the ESG model computed according to the AHP process as outlined in the methodology), are presented in Table 4.

Table 4. The value of the Random Consistency Index.

N	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.89	1.12	1.24	0.1.33	1.40	1.45	1.49

Source: Golden and Wang (1990).

Based on the geometric means from Table 5, the environmental pillar is relatively more important, with a geometric mean of 0.397, when compared to social and governance pillars, which obtained geometric means of 0.281 and 0.214, respectively. Therefore, the social pillar is the second most important, and governance is the least important of the three pillars.

Indicator 4 within the environmental pillar is significantly more important in relative terms, with a geometric mean of 0.729. Indicator 4 is "**Total weight of hazardous and non-hazardous waste in the current period.**" It is followed by indicator 1, "**Company's total consolidated greenhouse gas (GHG) emission for the current year and the cumulative progress towards zero emission**", which obtained a geometric mean of 0.271. This is not very surprising since indicator 1 was also rated the top by the panel of experts during the Delphi inquiry phase. The other three indicators within the environmental pillar were within the same range. Indicator 2, 3 and 5 obtained geometric means of 0.176, 0.147 and 0.116, respectively.

In the social pillar, which has been ranked the second most important after the environmental pillar as discussed above; indicator 1, "**Number of initiatives the company has (including policies and practices) to promote economic inclusion when selecting suppliers (forms of economic inclusion may include: suppliers owned by women; suppliers owned or staffed by members of vulnerable, marginalised, underrepresented social groups or youth; previously disadvantaged groups and small and medium sized suppliers).**", obtained the highest geometric mean of 0.276. Indicators 2–4 obtained geometric means of 0.169, 0.108, 0.119 and 0.182 respectively. Indicator 5, "**Increase in number of learnerships/internships specifically aimed at the unemployed youth**." is still considered significant, just as in the Delphi inquiry phase, although it achieved a geometric mean of 0.182, which was the second highest value after that of indicator 1.

Finally, indicator 1 in the governance pillar: "The extent to which the composition of governance bodies is diversified in terms of gender, age group, race, and other indicators of diversity." obtained the highest geometric mean above all the other four indicators. This response is consistent with the rating that the indicator obtained in the Delphi inquiry phase. Indicators 1–5 obtained geometric means of 0.188, 0.179, 0.139 and 0.104 respectively. The second-best performing indicator after indicator 1 in terms of the geometric mean is, therefore, indicator 2, "Number of initiatives (including systems and policies/codes) the company has in addressing workplace harassment (including sexual harassment). Do the initiatives explicitly extend to its supply chain?".

Table 5. AHP weights and consistency ratios at pillar and indicator levels.

	Environmental				Social				Governance			
Pillar level												
Arithmetic mean	0.397				0.281				0.214			
Geometric mean	0.430				0.304				0.265			
Ranking	1				2				3			
Consistency ratio					0.19							
Indicator level												
	Arithmetic mean	Geometric mean	Ranking	Consistency ratio	Arithmetic mean	Geometric mean	Ranking	Consistency ratio	Arithmetic mean	Geometric mean	Ranking	Consistency ratio
Indicator 1	0.319	0.271	2	0.147	0.317	0.276	1	0.189	0.302	0.252	1	0.205
Indicator 2	0.194	0.176	3		0.194	0.169	3		0.201	0.188	2	
Indicator 3	0.169	0.147	4		0.123	0.108	5		0.204	0.179	3	
Indicator 4	0.837	0.729	1		0.158	0.119	4		0.155	0.139	4	
Indicator 5	0.151	0.116	5		0.208	0.182	2		0.137	0.104	5	

Source: Matemane (2022).

The AHP results indicate that the environmental pillar should be prioritised above social and governance pillars within the ESG model. The indicators that were flagged as significant in the Delphi inquiry phase are still emerging as significant based on the AHP analysis. A consistency ratio of 0.190 was calculated for the pairwise comparison conducted for the pillars in the ESG model. On the other hand, consistency ratios of 0.147, 0.189 and 0.205 were calculated for the pairwise comparison of the indicators within the ESG pillars. Although these consistency ratios are greater than the 0.1 rule of thumb first suggested by the AHP pioneer Saaty (1980), they are still deemed to be acceptable in the context of this study for the following reasons:

- The survey was conducted online and there was no direct face-to-face interaction with the experts (Apostolou and Hassell 1993).
- Excluding the pillars and indicators with consistency ratios above 0.10 is tantamount to squeezing out the richness provided in the data (Apostolou and Hassell 1993).
- Indeed, in some instances, participants did not rank some of the pillars and indicators. However, upon following up, it was found that the intention was to flag those as equally important and when the data clean-up was conducted, the responses were manually adjusted (Wedley 1993).

Consistency ratios above 0.10 discussed above are still acceptable as the departure from the rule of thumb (that the consistency ratio should not exceed 0.10) was first established by Saaty (1980). The departure from the rule of thumb is well supported by the literature under the circumstances discussed above. The expert and professional judgement of the panel members regarding the relative importance of the pillars and that of the individual indicators within the pillars can, therefore, be relied upon. Figure 6 represents a diagram-based framework that is proposed in this study to be used in designing executive compensation plans.

In an ideal situation and as far as practically possible, all three pillars of ESG and all their underlying 15 indicators, 5 under each pillar, should be incorporated in designing the executive compensation plans for the listed companies. However, due to capacity constraints and other limitations, a company might not be able to implement all the pillars and all the indicators at the same time. Should that be the case, and depending on the company-specific circumstances, as well as the prevailing legislative and regulatory requirements, the environmental pillar should be prioritised over the social and governance pillar, respectively. Within the environmental pillar total weight of hazardous and non-hazardous waste in the current period should be prioritised over all the other indicators in order of priority as per the ranking indicated in the framework. This applies to the indicators in the social (number of initiatives the company has, including policies and practices, to promote economic inclusion when selecting suppliers, forms of economic inclusion may include; suppliers owned by women; suppliers owned or staffed by members of vulnerable, marginalised, underrepresented social groups or youth; previously disadvantaged groups and small and medium sized suppliers) and governance pillars (the extent to which the composition of governance bodies is diversified in terms of gender, age group, race, and other indicators of diversity) alike.

Figure 6. A framework for the prioritisation of ESG pillars and indicators for designing executive compensation plans. **Source:** Own compilation.

The study, therefore, offers three contributions. First, the practical contribution lies in the developed framework depicted in Figure 6. This framework can be used as a baseline

for companies that seek to integrate ESG-based non-financial performance measures in designing executive compensation plans. The framework provides guidance in terms of how the pillars and indicators should be prioritised when designing executive compensation plans. This is particularly important in the South African context where the listed companies have been pilloried by the Public Investment Corporation (PIC), a South African state-owned asset management company, for lacking non-financial performance measures in their executive compensation plans (Public Investment Corporation (PIC) 2018). Prioritising environmental pillar and the most important indicators therein, namely, waste management and minimization of greenhouse gas emissions, are well spotted in South Africa, a country that has committed to contributing to global efforts of halving the emissions by 2030 and reaching net-zero emissions by 2050 so that overall warming can be curbed to 1.5 °C to prevent the impact of climate change in terms of the Paris agreement (Jegede and Makulana 2019; Preston 2021).

Second, the methodological contribution of this study pertains to the use of Delphi and AHP techniques to solicit experts' opinions on the appropriate non-financial performance measures that can be incorporated in executive compensation plans alongside conventional financial performance measures. Literature on executive compensation has not sought to engage the opinions of the experts on the subject to solicit their views. Therefore, the indicators recommended and prioritised in this study are not only based on scientific evidence but have also been verified by experts in the field. Finally, the study also offers a theoretical contribution in that it does not only use agency theory, but it incorporates the stakeholder theory and legitimacy theory to understand the complexity surrounding the integration of ESG-based indicators in executive compensation plans and how this can be used to benefit the stakeholders beyond the shareholders and the executives. This is also illustrated in the use of experts from diverse fields representing different stakeholders whose voices ought to be heard if the companies are to obtain a social license to operate (Carlsson and Callaghan 2022).

5. Conclusions

The main objective of this study was to rank both the pillars within the ESG model as well as the 5 indicators under each pillar through the AHP. Such indicators were initially identified from the literature and exposed to a panel of experts through a Delphi inquiry strategy for executive compensation plans. Through the AHP, this study established that the environmental pillar is ranked as the most important, followed by the social pillar, while governance is ranked as the least important. Under the environmental pillar, indicators addressing waste and greenhouse gas emissions are the top two most important. Indicators within the social pillar that are deemed to be the most important, dealing with inclusivity and resolving unemployment crises. Finally, governance pillar indicators also emphasise diversity, equity and inclusivity. The importance of the environmental pillar over all the other pillars within the ESG model, as indicated by the AHP in this study, is consistent with Hřebíček et al. (2011), who argued that all the companies in all the sectors should report and measure how their activities are positively or negatively impacting on the environment. Companies can play a significant role in contributing to the net zero emissions and decarbonisation efforts as advocated for in the Paris Agreement (Hahn et al. 2018), hence the environmental pillar is deemed to be the most critical.

Social pillar indicators are particularly important in South Africa, a country characterised by higher unemployment, poverty and inequality. Therefore, it is hardly surprising that the AHP prioritised indicators that seek to address these challenges; the same applies to those that were flagged as important under the governance pillar, which put an emphasis on inclusivity, equity and diversity. Geza et al. (2022) lamented the higher unemployment among the youths in South Africa, which they suggest companies can contribute to resolving. On the other hand, the dominance of white males in both the boards of listed companies as well as in private companies generally has been highlighted as something that needs to be changed (Adelekan and Bussin 2018; Habiyaremye 2022). The findings of this

study are beneficial to the remuneration committees, executive compensation consultants and policymakers as they provide insights in what pillars of the ESG model and which indicators within each pillar should be prioritised in designing the executive compensation plans.

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